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(54) Combined mobile telephone/electronic personal organizer with writing tablet

(57) A mobile telephone handset has first and second modes of operation controlled by a moveable flap 104. The first mode of operation provides two way voice communication when the movable flap 104 is in a closed position. The second mode of operation provides a personal organizer when the flap 104 is in an open position. In the open position the flap exposes a writing tablet for the electronic personal organizer upon which the user may record sketches, messages, etc.

FIG.1

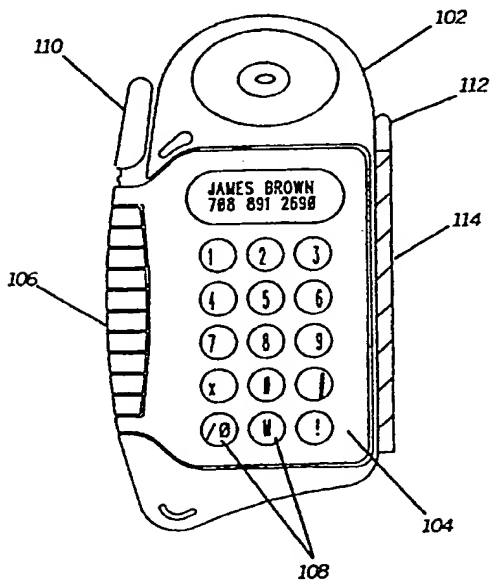
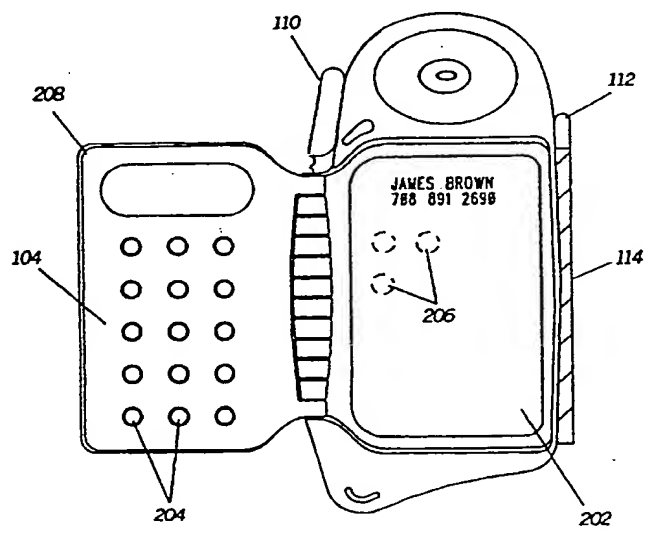


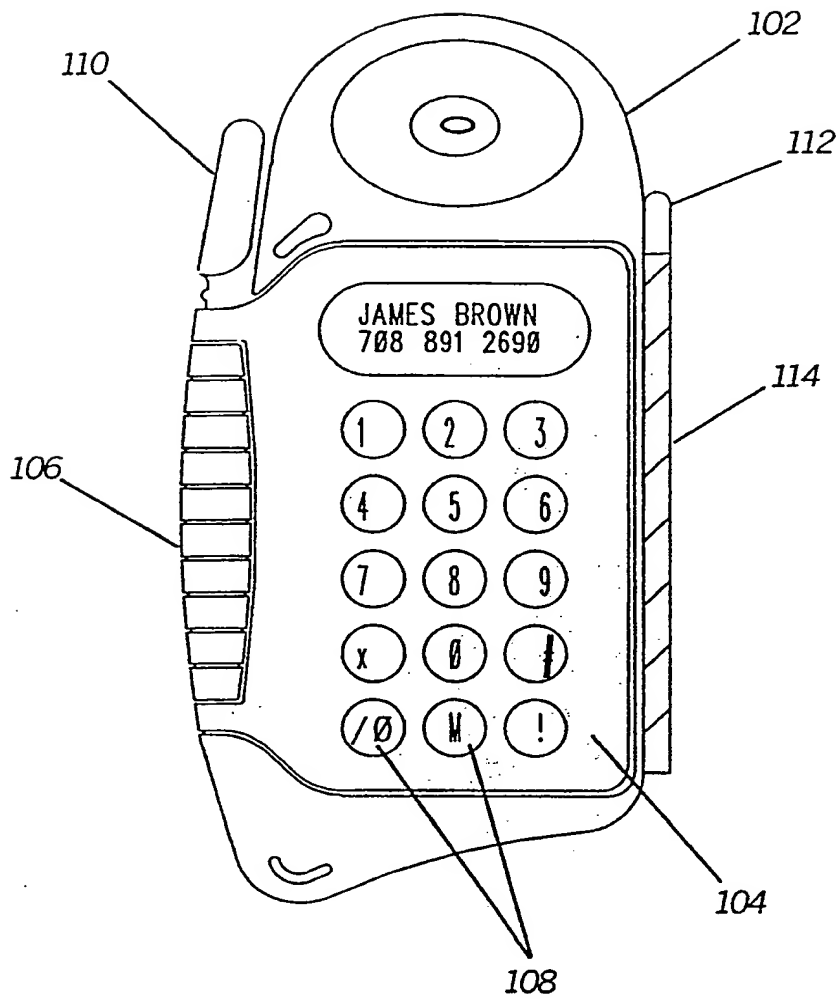
FIG.2



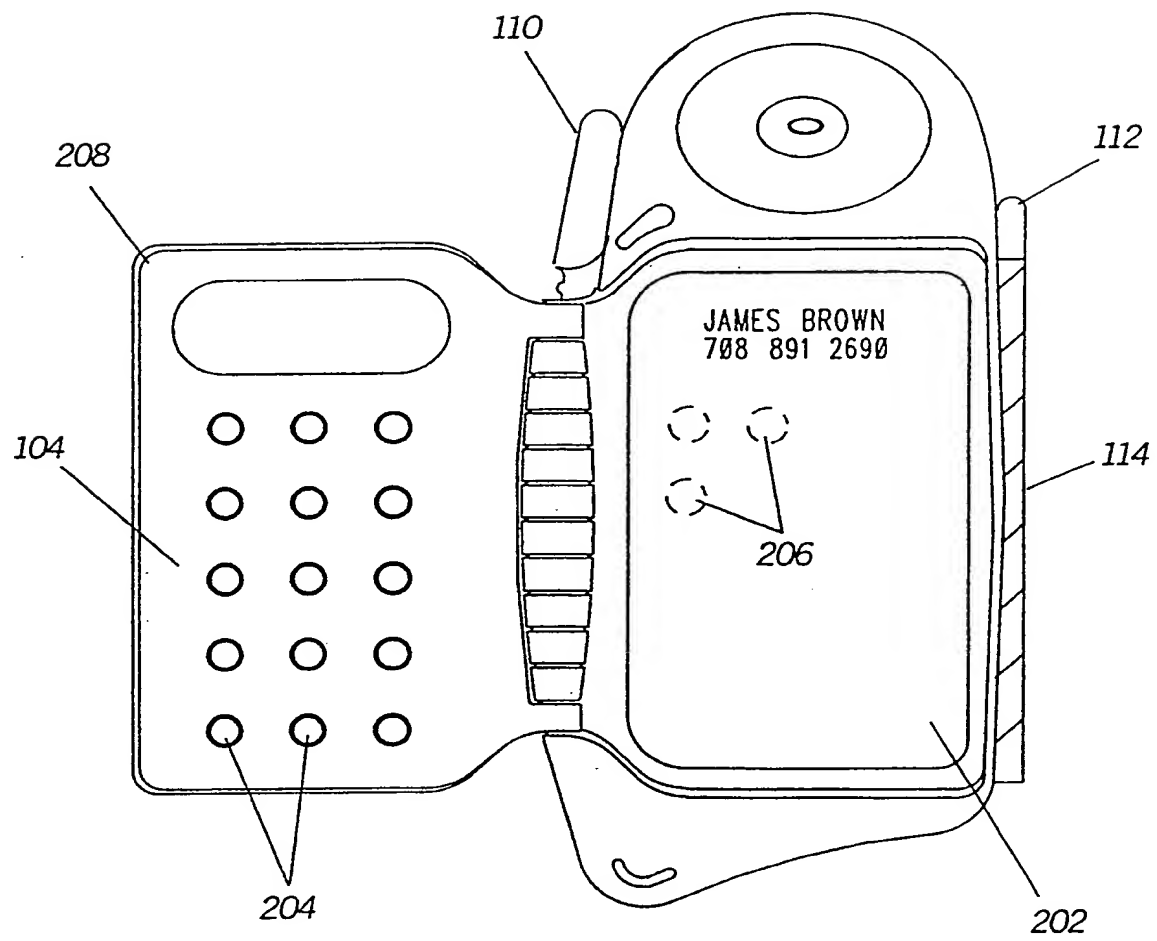
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*FIG. 1*



100

*FIG. 2*

## COMMUNICATION DEVICE

### Technical Field

5 This invention relates to communication devices, and more specifically to portable communication devices.

### Background

10 With the ever increasing popularity of portable electronic devices, such as cordless telephones and personal organizers, a higher priority is being placed upon designing these devices in lightweight and compact forms that are readily portable. While a user may enjoy the portability of these devices, he may still require carrying several devices at the same time in order to have two way voice communication and data communication at his disposal. Having to carry separate devices for a cordless telephone and  
15 personal organizer can be cumbersome for the user. Furthermore, these devices typically require separate chargers, and the disarray often associated with having multiple devices having multiple chargers can become quite inconvenient to the user. Hence, there is a need for a portable communication device that incorporates two way voice and data  
20 communication.

### Brief Description of the Drawings

FIG. 1 is a drawing illustrating a communication device in accordance with the present invention.

25 FIG. 2 is a second drawing illustrating the communication device in accordance with the present invention.

### Detailed Description of the Preferred Embodiment

FIG. 1 of the accompanying drawings depicts a portable radio, or  
30 handset, 100 in accordance with the present invention. The handset 100 to be described herein provides two way voice communication along with a personal organizer. In the preferred embodiment the handset 100 is a second generation cordless telephone (CT2) handset, however other communication devices, such as cellular telephones, could also employ this  
35 invention. The handset 100 includes a housing 102 and a flap, or front cover, 104 coupled to the housing through a hinge 106. A plurality of keys

are included within the flap 104 to provide dialing capability, menu scrolling, and other similar functions associated with cordless telephones. An antenna 110 is also included within the handset 100 as a means for transmitting and receiving a radio frequency signal. In the preferred embodiment of the invention, the plurality of keys 108 are included as part of a keypad membrane, sandwiched between two pieces of plastic to form the flap 104. Other materials, such as a single piece of rubber, could also be used to form the flap 104 including the keys 108. Also included in the flap 104 is a display window for displaying scrolled menus and information generated with key presses to the keys 108. Pressure surfaces (to be shown in FIG. 2) located on the back of each key travel a predetermined distance when the key is pressed such that contact to a touch sensitive screen (to be shown later) is made without damaging the screen.

Included within the hinge 106 is a sensor switch for detecting movement by the flap 104 between a first, or open, position and a second, or closed, position. In the preferred embodiment of the invention, the handset 100 operates as a CT2 phone when the flap is in the closed position, and the user can use the front keypad for typical CT2 phone functions. When the flap is opened, the sensor switch within the hinge 106 sends a signal to a controller section located within the housing 100 to indicate that the handset is to switch over to function as a personal organizer as well known in the art.

Referring now to FIG. 2, the handset 100 is shown with the flap 104 in the open position. By opening the flap 104, the switch located within the hinge 106, senses the change in the flap position and sends a signal to the controller section which enables a display, or lens, 202 coupled to the housing 102, to function as the personal organizer. With the flap 104 in the open position exposing the full display 202, the user has access to a full writing table, provided by the display 202, upon which to write notes, store messages, sketches, as well as other data operations. The display 202 is preferably a touch sensitive liquid crystal display (LCD) that reacts to a minimum amount of pressure. The display 202 may use touch sensitive film or other similar means for receiving data entry. Data is transferred to the display 202 through the form of key presses when the flap 104 is closed or handwritten data when the flap is opened. A stylus 112, preferably located in a retaining sleeve 114 on the side of the handset 100, may be

removed and used as a writing tool for sending handwritten data to the display 202 when the flap 104 is closed.

Also shown in FIG. 2, are the pressure surfaces 204 located on the inside of flap 104. When a key 108 is actuated from the front side with the flap 104 closed, pressure is applied via the pressure surfaces 204 to preferably a touch sensitive activation area 206 corresponding to each key within the display 202. Each pressure surface 204 aligns with a corresponding activation area 206 when the flap 104 is in the closed position. With each key press initiated by the user, the pressure surface 204 travels a predetermined distance to make contact to the corresponding activation area 206. These activation areas 206 are shown only for the purpose of describing the function of the keys when the flap 104 is closed. When the user opens the flap 104, the activation areas 206 no longer function as a keypad. Also included on the inside flap 104 is a bumper 208, preferably manufactured of rubber material, that sets the keys 108 and their associated pressure surfaces 204 a predetermined distance away from the surface of the lens 202 when the flap 104 is in the closed position. The bumper 208 helps prevent false key presses and also helps protect the lens 202 against breakage and scratches.

While the handset 100 is operating as a personal organizer when the flap 104 is in the open position, signaling information can still be received with antenna 110, and the user can be alerted to an incoming call. The user may then close the flap 104 and use the handset as a cordless telephone to answer the call.

The handset as described by the invention provides for two modes of operation by combining two way voice communication along with a personal organizer. By combining a cordless handset and personal organizer, the number of electronic devices a user must carry is reduced. The handset as described by the invention could also be charged from a single charger thus eliminating the need for multiple chargers. The cover or flap, when in the closed position, provides increased protection to the lens against breakage and dirt.

While the preferred embodiments of the invention have been illustrated and described, it will be clear that the invention is not so limited. Numerous modifications, changes, variations, substitutions, and

equivalents will occur to those skilled in the art without departing from the spirit and scope of the present invention as defined by the appended claims.

**Claims**

1. A communication device, comprising:  
a housing;  
5 a flap coupled to the housing operating between first and second positions;  
a display coupled to the housing, the display is covered by the flap when the  
flap is in the first position, the display is exposed when the flap is in the  
second position;  
a controller section located within the housing for processing key press data  
10 and handwritten data; and  
the display responsive to the key press data when the flap is in the first  
position, and the display responsive to handwritten data when the flap is in  
the second position.
- 15 2. A communication device as described in claim 1, further comprising a  
display window in the flap for displaying the key press data when the flap is  
in the first position.
- 20 3. A communication device as described in claim 2, further comprising a  
stylus for entering data onto the display when the flap is in the second  
position.
- 25 4. A communication device as described in claim 1, wherein the  
communication device operates as a cordless telephone when the flap is in  
the first position and the communication device operates as a personal  
organizer when the flap is in the second position.
- 30 5. A communication device as described in claim 4, further comprising a  
means for receiving signaling information when the flap is in the second  
position.

6. A communication device, comprising:

a moveable cover;

a keypad located within the moveable cover for entering a key press actuation;

5 a switch means for detecting movement in the moveable cover;

a display means having first and second modes of operation, the first mode of operation providing a predetermined actuation area for receiving the key press actuation entered from the keypad, the second mode of operation for receiving handwritten data entry to the display means; and

10 a controller for processing the key press actuation to the predetermined actuation area of the display means during the first mode of operation and for processing the handwritten data entry to the display means during the second mode of operation.

- 5 7. A communication device having first and second modes of operation, the first mode of operation provides two way voice communication and the second mode of operation provides a personal organizer, and comprising a flap coupled to the communication device, the flap operates between closed and open positions and includes a keypad for receiving key press data entry, the closed position allows key press data entry during the first mode of operation, the open position exposes a display coupled to the communication device for receiving handwritten data entry during the second mode of operation.
- 10 8. A communication device as described in claim 7, further comprising a controller section responsive to the open and closed positions of the flap, for controlling the first and second modes of operation.
- 15 9. A communication device as described in claim 8, further comprising a hinge for coupling the flap to the communication device, the hinge including a switch for detecting the open and closed positions of the flap, the switch sending a signal to the controller section in response to the open and closed positions of the flap.
- 20 10. A communication device as described in claim 7, further comprising a means for receiving signaling information during the second mode of operation.

**Relevant Technical Fields**

- (i) UK Cl (Ed.N) H3Q (QACX); H4J (JK); H4K (KFH)  
 (ii) Int Cl (Ed.6) H04B 1/08, 1/38; H04M 1/02, 1/03, 1/274,  
 1/60, 1/62, 1/72

**Databases (see below)**

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.

- (ii) ONLINE: WPI, JAPIO, CLAIMS

Search Examiner  
 MR P J EASTERFIELD

Date of completion of Search  
 17 AUGUST 1995

Documents considered relevant  
 following a search in respect of  
 Claims :-  
 1 to 10

**Categories of documents**

- X: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.  
 Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.  
 A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
A	EP 0613092 A1 (IBP PIETZSCH) see Figure 15	
A	EP 0534478 A2 (CASIO) whole document	
A	EP 0472361 A2 (NOKIA) whole document	

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

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